

## Patent Claims

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1. A method for synchronization of a base station (BS) to a mobile station (MS),
    - 5 - in which the base station transmits a signal sequence  $K(i)$  of length  $n$ , which can be formed in such a way that [lacuna],
      - in which a second signal sequence element  $K2(k)$  of length  $n2$  is repeated  $n1$  times and, in the process, has
      - 10 a first signal sequence element  $K1(j)$  of length  $n1$  modulated onto it,
      - in which  $n1$  is equal to  $n2$ , and
      - in which this signal sequence  $K(i)$  is determined in a mobile station.
  - 15 2. The method as claimed in claim 1, in which  $n$  is equal to 256,  $n1$  is equal to 16, and  $n2$  is equal to 16.
  3. The method as claimed in one of the preceding claims, in which
    - 20 the signal sequence  $K(i)$  is formed by modulation of the second signal sequence element  $K2(k)$  in accordance with the following rule:  $K(i) = K2(i \bmod n2) * K1(i \div n2)$ .
  4. The method as claimed in one of the preceding claims,
    - 25 - in which the predetermined signal sequence  $K(i)$  contained in a received signal sequence  $E(l)$  is determined in the mobile station by establishing the correlation sums  $S$  of the signal sequence  $K(i)$  with corresponding sections of the received signal sequence
    - 30  $E(l)$ , with
      - a partial correlation sum sequence  $TS(z)$  of the signal sequence element  $K2(k)$  with corresponding parts of the received signal sequence  $E(l)$  being calculated, and
      - 35 -  $n1$  elements of the partial correlation sum sequence  $TS(z)$  being selected in order to calculate a correlation sum  $S$ , and being multiplied by the signal sequence element  $K1(j)$  in the sense of a scalar product.

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5. The method as claimed in claim 4, in which

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n1 in each case n2-th elements of the partial correlation sum sequence TS(z) are selected in order to calculate a correlation sum S.

6. The method as claimed in one of claims 1, 2 or 3,

- in which the predetermined signal sequence K(i) contained in a received signal sequence E(l) is determined in the mobile station by establishing the correlation sums S of the signal sequence K(i) with corresponding sections of the received signal sequence E(l), with

- a partial correlation sum sequence TS(z) of the signal sequence element K1(j) with selected elements of the received signal sequence E(l) being calculated, and  
 - n2 elements of the partial correlation sum sequence TS(z) being multiplied by the signal sequence element K2(k), in the sense of a scalar product, in order to calculate a correlation sum S.

7. The method as claimed in claim 6, in which n1 in each case n2-th elements of the received signal sequence E(l) are selected in order to calculate a partial correlation sum TS.

8. The method as claimed in one of claims 4 to 7, in which calculated partial correlation sums TS are stored, and are used in order to calculate a further correlation sum S.

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